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HISTORY.—*The origin and early days of the Philosophical Society of Washington.*[1] WILLIAM H. DALL, National Museum.

The history of the scientific societies in Washington has been admirably told by Mr. G. Brown Goode in his memoir on the origin of the U. S. National Museum. There were, before the formation of the Philosophical Society, two or three societies, all of which finally died. One that included most of the naturalists was called the "Potomac-Side Naturalist's Club;" and it is a matter of some little interest that I had recently a call from Prof. John Chickering, the son of Professor Chickering, of Gallaudet College, who was one of our former members; and he told me that in going over his father's papers, he found the records of meetings of the "Potomac-Side Naturalist's Club."

Then there was the National Institute, which struggled along for a number of years very bravely against adverse circumstances, and finally was obliged to give up on account of the expense of maintaining a museum and other things of that sort which were beyond the means of the members of such a small society.

When I returned from Alaska in 1868, I found that there existed in Washington a club of, I presume, about 20 members, which was, to the best of my recollection, called the "Physical Club." It may be added that its membership comprised some of the most distinguished men of science in Washington, and

[1] An address delivered at the 789th meeting of the Philosophical Society of Washington, April 28, 1917.

Professor Henry was chairman. General Sherman, Admiral Jenkins, J. E. Hilgard, and a number of other men whose names are national property were members of this club. The general method was to have an address or paper by some member of the club, and afterward a social meeting with refreshments furnished by the host of that evening. They were most enjoyable evenings. However, in the course of time, it began to be felt by some of the members that the tax on the less wealthy members of the club was too great. The meetings were held fortnightly, and in the course of the season they would come around several times to the same member. There were others who wished very much to join, but could hardly be accommodated in the houses of the old members; and after more or less discussion about it Professor Henry suggested to some of the men who brought the matter to his attention that they should appoint a committee to organize a society and to have the whole subject laid before the club, to form an organization that would omit the refreshment part of the entertainment; that would make for scientific purposes; and that would be available for any scientific man, either visitor or resident of Washington, and would be restricted to men of science.

The result of this was that a committee was formed whose report you have heard read by the Secretary. The meeting was held in the Regent's room of the Smithsonian Institution, and Professor Henry, by unanimous vote, was made chairman.

A skeleton of a constitution and by-laws, which had been prepared by the Committee of the club, was presented at the meeting and adopted with some amendments. Then General Barnes, who was Surgeon-General, and was one of the members, was good enough to offer us more commodious quarters in the city. In those days coming over to the Smithsonian building, especially at night, was something of a task. The paths were not paved; if it happened to be rainy it was a very muddy walk indeed. There was a rather rickety bridge at Tenth Street over a very bad smelling canal which we all had to cross in order to get into the Smithsonian grounds. I do not know whether any of the present members know that that part of Washington was for-

merly known and is still known to old residents as "The Island" because it was separated from the city by the James Creek Canal. It is that broad road just south of the Center Market that was formerly the location of this canal, which formed a sort of semicircle and came around the museum grounds enclosing the more elevated land on which the Smithsonian Institution stands, and then went southward through the wide lowland nearly parallel with New Jersey Avenue, Southwest, to rejoin the Potomac, where a small remnant not yet filled in still exists. At that time nearly all of the members of the Society lived in the city and therefore found it desirable to have the place of meeting where they would not have to go through the Smithsonian grounds, often through a considerable amount of mud.

Probably those names that were read by the Secretary mean somewhat less to the members of the Society at present than they meant to us in those days, and I have made an analysis of the committee of the founders, which will, perhaps, throw a little light on the subject.

From the Smithsonian Institution there were of course, Prof. Joseph Henry and William B. Taylor, who was a very erudite man and had a considerable part in the activities of the Institution, T. R. Peale, S. F. Baird, Theodore Gill, and myself. From the Geological Survey (there was at that time no National Survey) came Dr. F. V. Hayden; the Signal Service was represented by General A. J. Myer; from the office of the Nautical Almanac came J. H. C. Coffin, whose great work on the *Winds of the Globe* is well known to all meteorologists.

From the Army there were General Sherman, General Benêt, General Humphreys, General George H. Elliott, General Casey, General Parke, and General Meigs, who built the Cabin John Bridge and had a good deal to do with many of our other principal buildings here in the District; from the Army Medical Museum staff and the Medical Department of the Army there were Dr. Woodward, a microscopist of high reputation; Dr. Otis, who was a distinguished anthropologist; Dr. J. S. Billings, to whom we owe the *Index Medicus;* and Dr. J. K. Barnes, who was Surgeon-General of the Army. Then there were Admiral Foote, Admiral

Sands, and Admiral Jenkins, and from the Naval Observatory Asaph Hall, Simon Newcomb, and William Harkness. These men were all distinguished. I suppose no Society of such a small number of persons as this ever had quite so many distinguished men in proportion to the whole number. I have always felt it a very great honor to have been permitted to join with them in calling myself a founder of the Society.

The original number o founders, that is, those whose signatures were on the list for the formation of the Society, was 43, including Professor Henry who proposed the name, Philosophical Society of Washington, giving to the adjective its original meaning implying the inclusion of all branches of science. No list of members was published in the *Bulletin* until 1874 when the number was 128, there having been four deaths of members, but during that time 85 additional members became connected with the Society. Professor Henry presided over the Society until his death in 1878.

The *Bulletin*, which was issued shortly after the formation of the Society, when enough material had accumulated to form a volume, was reprinted at Professor Henry's suggestion, as a volume of the *Miscellaneous Collections of the Smithsonian Institution*. That procedure was continued during Professor Baird's lifetime. The publications were made up, edited, and printed by the Society, the Smithsonian Institution publication being made by the use of stereotype plates. The reprint was not issued until 1888.

Meetings were held at the offices of the Surgeon-General in the old Ford Theater Building, and were extremely interesting. The Society was made up of men who could say something interesting on almost every branch of science.

We had some very remarkable work presented to the Society. We were privileged, I think, to have the first testing of the telephone. Mr. Bell was introduced by one of the members of the Society. A telephone wire and receiver were strung up in the room where we had our meeting and the transmitter was taken off into another room at some distance and each member of the Society was enabled to hear communications that came from the

other room. That was before 1876, when the first public exhibition of the telephone took place at the Centennial Exposition at Philadelphia.

Among other things, I remember a paper by Dr. A. F. A. King in which the mosquito theory of the transmission of malaria was fully set forth. Dr. King was one of those who originated the theory that the disease is transmitted by these insects. Of course, the theory required proof, and it was not till a good many years afterward that proof was furnished by contributors from the Medical Corps of the Army and others.

Most of the papers in the early days were intended to be published elsewhere than in the *Bulletin* of the Society. They were read there for the information of the members, and when the *Bulletin* was printed, it would give the title of the paper and state the place in which it was published, and in that way reference could be had from the *Bulletin* to the place of publication of anything that was read before the Society. At first, of course, the pecuniary resources of the Society were not great and it could not afford to publish many papers, but owing to the fact that most of the members were members of the Government staff under one Bureau or another, and that the publication of their results would naturally have to be through Government agencies, the system adopted was fairly satisfactory. The Society was a great boon to all of us who desired to know something of what was going on in the departments of science with which we were not personally acquainted.

I think that there were none of us but derived welcome and interesting information, and added to our store of knowledge from the communications that came from other members in quite different fields of work. I ought perhaps to mention one of the remarkable things that were done by members of the Society at that time. This was the work of Dr. Woodward of the Army Medical Museum in microscopy. He was the first, as far as I know—at all events in this country, and I think the first anywhere—to succeed in getting a diatom photograph of a perfection and size that would reveal, for instance, all the almost invisible, complete and beautiful ornamentation with which it is

provided. Dr. Woodward brought forth his new slides and explained the working of the modifications that he made to his microscope in order to produce this work, and then threw on the screen the beautiful figures, sometimes of an almost invisible diatom enlarged to six feet high, showing every detail of its beautiful structure. They were very interesting indeed. In fact I might go on for a long time with reminiscences of what was brought before us; but we are to hear from others of what developed in the Society as it grew larger and larger and the number of scientific men increased, and how bodies of our members formed other societies and gave to them independent lives.

ABSTRACTS

Authors of scientific papers are requested to see that abstracts, preferably prepared and signed by themselves, are forwarded promptly to the editors. Each of the scientific bureaus in Washington has a representative authorized to forward such material to this JOURNAL and abstracts of official publications should be transmitted through the representative of the bureau in which they originate. The abstracts should conform in length and general style to those appearing in this issue.

GEODESY.—*Descriptions of triangulation stations in Georgia.* C. H. SWICK. U. S. Coast and Geodetic Survey Special Publication No. 45. Pp. 43, with 1 illustration. 1917.

This volume is supplementary to *Triangulation in Georgia*, U. S. Coast and Geodetic Survey Special Publication No. 43, abstracted in a preceding number of this JOURNAL (**7**: 584. 1917), and contains all available descriptions of the triangulation stations in Georgia whose geographic positions are given in the previous volume. Practically all of the triangulation data in Georgia, the observations for which were made before 1917, are now in published form and so are readily available for the use of engineers, geographers, and surveyors.

C. H. S.

GEOLOGY.—*The De Soto–Red River oil and gas field, Louisiana.* GEORGE CHARLTON MATSON and OLIVER BAKER HOPKINS. U. S. Geological Survey Bulletin 661–C. Pp. 40, with maps, sections, and illustrations. 1917.

The De Soto-Red River oil and gas field lies in the northwestern part of Louisiana. In 1912, gas was discovered in De Soto Parish near Naborton at a depth of about 800 feet. Deep drilling resulted in the discovery of small quantities of oil, and on May 10, 1913, the completion of the Gulf Refining Company's Jenkins well No. 2 proved the presence of a notable oil pool. The producing oil and gas bearing sands are in the Gulf series of Upper Cretaceous age.

The shales associated with the sands and in some places the sands themselves contain considerable organic matter which was apparently derived chiefly from vegetation, and it is believed that the oil and gas were formed from this organic matter by slow chemical changes, which may have been facilitated by moderately high temperature and the

pressure caused by the load of sediments that overlie them, and by the thrusts to which they have been subjected.

The gas and oil in the De Soto-Red River field were probably accumulated under hydraulic pressure. This hypothesis is supported by the relations of these substances to the structure and by the occurrence of the oil in very productive pools of small area. R. W. STONE.

GEOLOGY.—*The Bowdoin dome, Montana, a possible reservoir of oil or gas.* ARTHUR J. COLLIER. U. S. Geological Survey Bulletin 661–E. Pp. 17, with maps, sections, and illustrations. 1917.

The Bowdoin dome is situated on Milk River, in northeastern Montana, on the main line of the Great Northern Railway between Malta on the west and Hinsdale on the east. A well drilled here for water several years ago has been yielding a small flow of gas ever since, and it is thought that the region offers a chance of success to the driller of deeper wells. In 1915 a large gas well was drilled at Havre. Only the Upper Cretaceous Claggett shale, Judith River formation, and Bear-paw shale, and some of the more recent surficial deposits are exposed in the immediate vicinity of the Bowdoin dome. The structure revealed by the Judith River formation in its outcrop around the valley of Milk River is that of a very broad, flat dome. The dips of the sandstone are so low as not to be detected by the unaided eye and are best recorded in feet to the mile. There is no place around the dome where a dip as high as 1 degree has been found.

The Bowdoin dome has a structure which if found in Oklahoma or Ohio would be regarded as favorable for the accumulation of oil or gas.
R. W. STONE.

GEOLOGY.—*The Corsicana oil and gas field, Texas.* GEORGE CHARLTON MATSON and OLIVER BAKER HOPKINS. U. S. Geological Survey Bulletin 661–F. Pp. 43, with maps, sections, and illustrations. 1917.

The Corsicana oil and gas field, in Navarro County, Texas, measures 20 miles from north to south and 10 miles from east to west. Oil was first discovered here in the city of Corsicana, and the field has been productive for more than twenty years.

The oil and gas are obtained from the upper part of the Upper Cretaceous, the light oil and the gas in the Corsicana oil pool and in the Chatfield and Edens gas pools probably coming from the Taylor marl and the heavy oil and the gas in the other pools from the Navarro

formation. This field continued to yield almost the entire production of Texas until 1909, when the gas fields of Clay County were developed. The Lower Cretaceous formations have not been reached in any of the wells in the Corsicana field.

The strata in the Corsicana field dip in general to the southeast at a rate of 50 to 100 feet to the mile. The uniformity in direction and amount of dip is interrupted at a number of places by folds, but none of the folds are continuous over large areas. The greatest dips observed on the folds are at the rate of 560 feet to the mile, and these high dips are confined to small areas. The irregularities in the normal position of the strata seems to have been produced by forces acting in two directions, as two systems of folds are determinable—one approximately parallel to the dip of the rocks and the other at right angles to it. So far as observed, there is no evidence of faulting, or breaking of the rock strata, in this field.

A review of the discussion of the structure or a study of the structure map of the Corsicana field shows that oil and gas occur in this field under two different structural conditions. They have accumulated along the crests of well-defined anticlines, as in the Burke pool, and also in beds of fairly uniform dip, as in the Corsicana pool. Drilling has shown, however, that the sands of this field are lenticular and vary in porosity and thickness from place to place.

In the Corsicana district there are at least two productive sands which are believed to belong to the Taylor formation—the Corsicana and Edens sands. The Corsicana sand is the principal producing sand and yields light oil and a small amount of gas at a number of places, particularly toward the north end of the district.

The oil of the Corsicana field is believed to have originated from organic matter in the shales that inclose the sands and to a minor extent in the sands themselves. R. W. Stone.

GEOLOGY.—*Structure of the northern part of the Bristow quadrangle, Creek County, Oklahoma, with reference to petroleum and natural gas.* A. E. Fath. U. S. Geological Survey Bulletin 661–B. Pp. 31, with maps, sections, and illustrations. 1917.

The rocks exposed at the surface in the Bristow quadrangle and those beneath it to a depth of 2500 feet or more are a part of the Pennsylvanian series, the series to which belong the surface rocks throughout the oil fields of northeastern Oklahoma. The strata dip slightly north of west about 50 feet to the mile, or a little more than half a degree.

However, the westward slope of the beds is modified by variations in the rate of dip, by local folds, and by small faults. Accumulations of oil and gas are generally found in close relation to local irregularities in the general structure of a region, and it is to such folds and irregularities that attention is principally directed in this paper.

R. W. STONE.

PARASITOLOGY.—*Life history of* Ascaris lumbricoides *and related forms.* B. H. RANSOM and W. D. FOSTER. Journ. Agr. Research **11**: 395–398. November 19, 1917.

The development of *A. lumbricoides* and closely related forms is direct, and no intermediate host is required. The eggs, when swallowed, hatch out in the alimentary tract; the embryos, however, do not at once settle down in the intestine, but migrate to various other organs, including the liver, spleen, and lungs. Within a week, in the case of the pig *Ascaris*, the migrating larvae may be found in the lungs and have meanwhile undergone considerable development and growth. From the lungs the larvae migrate up the trachea and into the esophagus by way of the pharynx, and this migration up the trachea may already become established as early as a week after infection. Upon reaching the alimentary tract after their passage through the lungs, the larvae, if in a suitable host, presumably settle down in the intestine and complete their development to maturity; if in an unsuitable host, such as rats and mice, they soon pass out of the body in the feces. Heavy invasions of the lungs by the larvae of *Ascaris* produce a serious pneumonia which is frequently fatal in rats, mice, and guinea pigs, and apparently caused the death of a young pig one week after it had been fed with numerous *Ascaris* eggs. It is not improbable that ascarids are frequently responsible for lung troubles in children, pigs, and other young animals. Age is a highly important factor in determining susceptibility to infection with *Ascaris*, and susceptibility to infection greatly decreases as the host animal becomes older.

B. H. R.

PARASITOLOGY.—*Oil of chenopodium and chloroform as anthelmintics.* M. C. HALL and W. D. FOSTER. Journ. Amer. Med. Associat. **68**: 1961–1963. June 30, 1917.

Oil of chenopodium as an anthelmintic should be accompanied by large doses of castor oil, and when so given is a very effective and safe remedy against ascarids. Chloroform in castor oil was found to be more effective against hookworms than any other remedy tested.

B. H. R.

PARASITOLOGY.—*The occurrence in the United States of certain nematodes of ruminants transmissible to man.* B. H. RANSOM. N. Orl. M. & S. J. **69**: 294–298. October, 1916.

Attention is called to the fact that three of the four species of the nematode genus *Trichostrongylus* that have been recorded as parasites of man are of more or less common occurrence in ruminants in the United States, indicating the probability that they also occur in human beings in this country but have been overlooked. B. H. R.

PARASITOLOGY.—*The zoological position of the Sarcosporidia.* HOWARD CRAWLEY. Proc. Acad. Phila. **68**: 379–388. August 14, 1916.

The Sarcosporidia are usually assigned to the Neosporidia, one of the two subclasses recognized as making up the class Sporozoa, but it is considered by the present writer that they belong in the other subclass, Telosporidia and should be placed in the order Coccidiomorpha, which accordingly would include three suborders—Coccidia, Haemosporidia, and Sarcosporidia. The probability is suggested in view of certain evidence given that the Sarcosporidia in their normal life cycle depend upon an alternation of hosts, at least one of which must be a carnivorous animal. B. H. RANSOM.

PARASITOLOGY.—*Serum therapy for trichinosis.* BENJAMIN SCHWARTZ. Journ. Amer. Med. Associat. **69**: 884–886. September 15, 1917.

Serum from animals convalescent from trichinosis when injected into other animals did not produce immunity to trichinosis in the latter. Trichinous meat mixed with serum from animals during the active or convalescent stage of the disease proved to be still capable of producing the disease. Animals once infected and harboring trichinae in their muscles were not immune to further infection when fed trichinous meat. Serum from a trichinous animal had no observable ill effects on the larvae freed from their cysts by artificial digestion. None of the results of the experiments appears to be in harmony with the assertions made by Salzer (1916, 1917) concerning the value of serum from convalescent animals as a prophylactic or curative agent in trichinosis. B. H. RANSOM.

PROCEEDINGS OF THE ACADEMY AND AFFILIATED SOCIETIES

BIOLOGICAL SOCIETY OF WASHINGTON

The 574th regular meeting of the Society was held in the Assembly Hall of the Cosmos Club, Saturday, November 17, 1917; called to order by President HAY at 8 p.m.; 78 persons present.

On recommendation of the Council the following named persons were elected to membership: Miss KATHERINE A. STUART, Alexandria, Va.; H. C. FULLER, Institute for Industrial Research, Washington, D. C.; HERBERT POPENOE, Assistant Editor, *Journal of Heredity*, Washington, D. C.

Under the heading brief notes and exhibition of specimens, Dr. R. W. SHUFELDT exhibited two grasshoppers, the black Louisiana form of *Rhomaleum micropterum*, and a specimen of the same species from Florida, the latter being much lighter in color, a sort of tan with a tendency in places to pinkish and greenish.

The regular program was a symposium: *Recently introduced pests and the problem of accidental introductions.*

1. C. L. MARLATT: *The pink bollworm of cotton*, illustrated by lantern slides. (No abstract.)

2. A. L. QUAINTANCE: *Recently introduced fruit insects*, illustrated by lantern slides. (No abstract.)

3. PERLEY SPAULDING: *Some biological aspects of the spread of the white-pine blister rust*, illustrated by lantern slides. Mr. Spaulding said that the white-pine blister rust probably originated in Asia, spread thence to Europe, and more recently to North America. The factors concerned in its distribution are: (1) Man aids distribution by extensive long distance shipment of nursery stock of pines and possibly of *Ribes* infected by this disease. He hinders distribution by quarantines and inspections of nursery stock shipments. (2) Animals and insects carry the spores about on their bodies thus aiding local spread of disease. They also hinder the production of spores by eating the fruiting bodies and the surrounding host tissues. Gypsy moth larvae which are known to be blown for miles feed freely upon the spores and in infected areas the spores stick in great numbers to their bodies. (3) Wind blows the spores freely about, as well as gypsy moth larvae which bear spores upon their bodies. Rain hinders spread by beating down spores which are floating about in the air. Sunlight within a short time destroys the viability of exposed spores.

This disease is but one of many which has spread from one country to another and in many cases from one country throughout the world. A list of thirty such diseases caused by bacteria and by representatives

of all the large groups of parasitic fungi was given, together with the country of origin and present distribution. The conclusion was drawn that it is necessary to control the commercial importation of living plants in such a way that only healthy plants will be received in this country.

4. L. O. HOWARD: *Some points for consideration in a discussion of the problem of accidental introduction.* Dr. Howard discussed briefly the influence which our knowledge of the broad life zones of the world might have in regard to restrictive legislation among nations, and the influence which our knowledge of the life zones of the United States, largely due to Merriam and the Bureau of Biological Survey of the Department of Agriculture, might have on sectional quarantines. He pointed out the greater probability of the establishment of an injurious form coming from what might be termed a "parallel life zone"—as from the Nearctic to the Palearctic—than from another zone, but showed that recent experience has indicated that the country is not free from danger from certain pests coming from zones of radically different types of life. He invited discussion of the broader biological aspects of the question.

Prof. H. MAXWELL-LEFROY, Imperial College of Science, London, Prof. W. M. WHEELER, Bussey Institution, Harvard University, E. W. NELSON, J. B. GORDON, and VERNON BAILEY took part in the discussion.

The 575th regular meeting of the Society was held in the Assembly Hall of the Cosmos Club, Saturday, December 1, 1917; called to order by President HAY at 8 p.m.; 26 persons present.

On recommendation of the Council, LEE R. DICE, of the University of Montana, was elected to membership.

The following informal communications were presented:

Dr. WALTER P. TAYLOR: *Exhibition and discussion of distribution of marmots from the State of Washington.* Dr. Taylor exhibited specimens of marmots collected in the State of Washington, where both the *caligata* and *flaviventris* groups are represented, citing certain facts in their distribution which emphasizes the principle that the extent of zonal distribution of an animal depends, not alone on the temperature and other requirements of that animal, but also upon the presence or absence, in particular restricted areas, of closely related types filling the same or a similar niche in the economy of nature. He also called attention to the fact that the distribution of these animals is in harmony with what we know of the antiquity of the Columbia River as a barrier to the distribution of boreal forms, and suggested that as compared with the portions of the Cascade Mountains north and south of the Columbia River, the Olympic Mountains have probably been isolated comparatively recently. Discussed by Gen. T. E. WILCOX.

ALEX. WETMORE discussed the peculiar molting in ducks by which the large wing feathers are simultaneously shed, rendering the birds flightless for a period during which time they take refuge in marshes.

Dr. T. S. PALMER called attention to the recent successful meeting of the A. O. U. and the interest now taken in birds of foreign countries.

Dr. L. O. HOWARD made remarks on a recent article in a French scientific journal giving analysis of bread found on a Zeppelin, some of rye made into sandwiches of suet, and some of rye and rice with cheese, it being of notably better quality than bread taken from German prisoners, some of the latter being made in part of the inner bark of poplar trees.

W. P. HAY exhibited lantern slides of the marine turtles of eastern North America with an account of their habits, distinctive characters, and uses to man. Discussed by Gen. T. E. WILCOX and by Admiral BAIRD who described a native method of catching hawkbill turtles without injuring the skull.

ALEX. WETMORE remarked on red bats seen November 17. Discussed by VERNON BAILEY and by M. W. LYON, JR., who had seen brown bats flying in the evening during the Christmas holidays several years ago at Hyattsville.

The regular program was as follows:

CHARLES WARDELL STILES: *Haak as author of Brisson's 1762 edition of Regnum Animale.* Dr. Stiles being out of the city on sanitary work at one of the southern military camps, the paper was presented by Dr. T. S. PALMER. The work was exhibited and it was shown that Brisson was not its author. Dr. Palmer gave some interesting facts about the life of Brisson and some of his contemporary associates.

Lieut. M. W. LYON, JR.: *The relative resistance of the red blood corpuscles of the sheep, ox, and hog.* A résumé of the hemolytic action of human serum, certain fish serum, and hypotonic salt solutions on these corpuscles was given. The results are being published in the Journal of Infectious Diseases.

M. W. LYON, JR., *Recording Secretary.*

BOTANICAL SOCIETY OF WASHINGTON

The 123d regular meeting of the Society was held at the Cosmos Club, Tuesday, November 6, 1917. Fifty-nine members and 4 guests were present. Among the guests were Dr. L. P. DE BUSSY, now on his way from Sumatra to Amsterdam, Holland, to become Director of the Colonial Museum at the latter place, and also Prof. H. H. WHETZEL, in charge of the Plant Pathology Department, Cornell University, Ithaca, N. Y. The program was devoted to a discussion of some of the newly-discovered diseases of corn.

G. N. COLLINS: *Maize: Its origin and relationships.* The reasons for believing that maize has originated as a hybrid between teosinte, *Euchlaena mexicana,* and some member of the Andropegoneae were reviewed.[1] Maize is dependent on cross fertilization for normal and vigorous development. It has now been demonstrated that teosinte does not share with maize this intolerance of self-pollination. Thus maize appears to be unique among the grasses in possessing this characteristic of hybrids. The inheritances of the characters separating maize and teosinte have been studied in hybrids and none were found

[1] Journ. Wash. Acad. Sci. **2**, 520–530. 1912.

to be either alternative or Mendelian. These results were advanced as evidence against the hypothesis that maize has originated by mutation from teosinte. A summary of the evidence to date was held to support the view that teosinte and the unknown ancestor of maize had evolved by gradual changes along divergent lines and that the divergence took place before the separation of the Maydeae and the Andropogoneae.

Evidence was presented for believing that the Maydeae and Andropogoneae were closely related and should not be considered as separate tribes. It was urged that a recognition of the close relationship of these two groups was of practical importance in the study of maize diseases and as a guide in establishing quarantine regulations.

W. H. WESTON: *The downy mildews of maize, their origin and distribution.* During the past twenty years considerable alarm has been occasioned by several serious downy mildews which have appeared on maize and its relatives in the eastern tropics. *Peronospora Maydis* Rac. has been very destructive to maize in Java, Madoorah, and Atjeh since 1892; and although Euchlaena has so far proven immune, crosses of this plant with maize are extremely susceptible. *Sclerospora sacchari* Miy. was reported in 1911 as causing serious injury to maize and sugar cane, and capable of inoculation onto Euchlaena, in Formosa; and was later found also in Queensland and the Fiji Islands. *Sclerospora Maydis* (Rac.) But. appeared on maize in India about 1913; and in 1916 a species of Sclerospora, possibly identical with this, was found to be destroying the maize crop in certain parts of the Philippines. Since these parasites are unknown in the Americas where maize originated, it is probable they have spread to maize from some of the several related grasses native to the Orient. To prevent the tremendous loss that would undoubtedly follow the introduction of these diseases into the United States, the importation of maize and its relatives from infected countries has been prohibited.

G. R. LYMAN: *Plant Disease Survey work on the Physoderma disease of maize.* This disease was first found in this country by Barrett at Urbana, Illinois, in 1912. It was first reported as of economic importance by Barre in South Carolina in 1914. During the next two years, the disease was found to be prevalent in North and South Carolina, Georgia, Florida, Alabama, and Mississippi. In 1917, it was also found generally distributed in Tennessee.

In September of this year, the Plant Disease Survey put twelve scouts into the field to act in cooperation with the Office of Cereal Investigations, Bureau of Plant Industry. In addition to the states named, the disease was found to be prevalent in eastern Virginia, Kentucky, southern Illinois, southeastern Missouri, Arkansas, and Louisiana, and to be sparsely present as far north as New Jersey, southern Minnesota, and South Dakota, and as far west as central Nebraska and central Texas. It has evidently spread as far as climatic limitations will permit its development, being inhibited by cold weather in the North and by lack of moisture in the West.

An intensive study was made of selected regions in the South Atlan-

tic and Gulf States to obtain data on the seriousness of the disease and on its relation to various environmental factors. High temperature and moisture are necessary for extensive development, and in favorable regions in the South the disease causes a damage of 5 per cent to 10 per cent. It will not be a serious factor in the North and West except locally and under exceptional conditions.

The disease was also found on teosinte at two points in South Carolina and at one point in Louisiana.

Heavy infection of fields never before planted to corn may be explained by the presence of other host plants or by the carriage of infection on the seed corn.

The 124th regular meeting of the Society was held at the Cosmos Club, Tuesday, December 4, 1917; 72 members and 8 guests were present.

C. S. SCOFIELD: *Geographical aspects of Haitian agriculture.* Haiti lies adjacent to the steamship route between New York and Panama and has the most direct access to our markets of any of the American Tropics. The climate is favorable to crop production, the land is fertile, and the dense population provides a cheap and abundant supply of labor. The coastal delta plains are favorably located for irrigation and the production of sugar cane and cotton, and the hill slopes are well suited to coffee, which is now the chief commodity of export. The interior plains and the higher mountain slopes produce an abundance of grass for stock production.

The present government, with American cooperation, has eliminated the conditions of internal disturbance that formerly retarded development and prosperity. The construction of roads and the protection of the peacefully inclined inhabitants is resulting in greatly increased crop production, which is opportune at this time.

C. B. DOYLE: *Botanical aspects of Haitian agriculture.* In Haiti there is very little left to represent the original forest covering. The primitive milpa system of agriculture is used and the natives live in scattered families or small groups. There are only a few large plantations on the island, the bulk of the crops of the three principal exports (coffee, cacao, and cotton) being produced on the small native farms.

Most of the food plants are of American origin, but as in many tropical American countries, it is the introduced species that have become of the greatest importance to the natives. Many different kinds of fine fruits are abundant, but several species prominent in other parts of tropical America, such as the papaya, sapote, sapodilla, and pineapple, are absent or little used. Among the root crops that are commonly grown are sweet potatoes, yams, yautias, and cassava, and more recently white potatoes are being successfully produced in the cool mountain districts southeast of Port au Prince.

In comparison with other tropical countries, conditions appear favorable for crop production in Haiti, if a more effective organization of agriculture can be established, together with a better means of marketing the products.

H. N. VINALL, *Corresponding Secretary.*

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